

WEATHER AND CROPS IN ARKANSAS, 1819 TO 1879.

By W. C. HICKMON, Observer.

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SYNOPSIS.

Arkansas Territory was formed July 4, 1819, the State admitted June 15, 1836. Since that time much has been said of Arkansas's "slow train," her swamp land, and mosquitoes; very little of her delightful climate or her abundant crops.

During the 60 years from 1819 to 1879 a fairly complete weather record was kept by Mr. William E. Woodruff and other early pioneers and published in the Territorial and early State newspapers.

From this record we find that extreme temperatures have been rare, the coldest winter probably being 1820-21, though a lower temperature (-11°) was recorded in February, 1823. Dry spells have frequently damaged crops during the summer months, the year 1838 being long remembered because of its continued drought, but good years far outnumber bad ones. Few things of importance escaped the notice of Mr. Woodruff. We find a description of the first Territorial Christmas; the meteor shower in November, 1833; the low water of 1838; and even a flood on the Town Branch received mention.

Considerable additional information was obtained regarding early high-river stages, especially on the Arkansas. That this information is reliable is quite evident from the minute description and painstaking care with which Mr. Woodruff goes into the details of several floods, notably the one in June, 1833.

As Arkansas began her career as a Territory and a State long before the Weather Bureau or the Smithsonian Institution began keeping a weather record in this section, an effort has been made to collect all available reliable information regarding early weather and crop conditions of the State and to connect our present record, which begins in 1879, with 1819, the year Arkansas Territory was created.

The data from which this paper is prepared were obtained principally from newspaper files, beginning with the *Arkansas Gazette* of November, 1819, the *Gazette* and *Democrat*, *Arkansas Banner*, *True Democrat*, *Arkansas Democrat*, *Washington Telegraph*, and other early newspapers. These files are being preserved by the Arkansas History Commission, Department of Archives and History. Acknowledgment is made of our indebtedness to Mr. Dallas T. Herndon, secretary of the commission, through whose assistance the preparation was made possible.

As the early records are almost wholly the observations of one of the early pioneers a word will be said of his coming to Arkansas. When the Territory was formed Arkansas Post, the seat of government, soon became a thriving village, and in 1819 among others there came to the Post a typical New England Yankee, Mr. William E. Woodruff, who founded the *Arkansas Gazette*, and it is to this untiring worker and close observer that we are indebted for our early records of Arkansas's weather. Mr. Woodruff's connection with the *Gazette* continued until the early fifties, and while he was actively engaged editing the paper scarcely a week passed without some note being made as to the prevailing weather, the river stage, and the crops.

Nature did her part toward giving the first Territorial Christmas a Christmas appearance, the weather being cold and rainy, accompanied with sleet and ice for several days preceding, and on the 24th snow covered the ground and continued the 25th.

In the early days supplies were received at the Post by boat from Cincinnati or New Orleans, much of the mail the same way; there was a post route through Davidsonville to the Post over which there was spasmodic service. This route, coming as it did through the northeastern section of the Territory, necessarily crossed many creeks and bayous, and after heavy rains there was always a

wail going up from the *Gazette* that no mail was received, and when the river was too low for navigation the inconvenience caused thereby was commented on. Thus on February 12, 1820:

Our supply of paper was not received, owing to the uncommonly low state of the river for several months past.

The spring of 1820 was a late one. In the issue of the 11th of March we find:

On Monday night last we were visited with a heavy fall of rain and hail, accompanied with tremendous thunder and lightning, which was succeeded by sleet and snow on Tuesday morning. The storm did not cease until Wednesday morning, the snow then lying 5 inches deep on a level.

After March there were frequent rains, and boating continued good. As late in the year as December heavy rains occurred, causing considerable swell in the river, a rise of 8 to 10 feet being recorded one week.

The winter 1820-21 was a severe one.

Accounts from all quarters agree. The present winter will stand preeminent in the annals of meteorology as the severest for 40 years, and even the hard one of 1780 must yield the palm to 1821. It is a remarkable fact hitherto unaccounted for by philosophers, that every fortieth year should be distinguished by the severity of its winters. Strikingly exemplifying this is 1740 and 1780, winters in which the cold was so intense that they are still referred to with chilling recollections as dreadful.

Traffic on the river continued throughout the summer, and while there was moderately high water on the Arkansas in July, no material damage to crops occurred. The season as a whole was very favorable for cotton and corn and the farmers reaped a rich reward in the fall, the crops being the most abundant thus far harvested in the Territory. The late autumn and early winter were dry, and by December it was necessary to reduce the size of the *Gazette* owing to a scarcity of paper, the river at that season being too low for boating.

The first snow came in November, and on the 24th the ground was covered to a depth of 1 inch. Winter set in early. Quoting from the first issue published at Little Rock, December 29, 1821:

For some time past the weather has been extremely cold. On Sunday morning the Arkansas River was frozen over opposite this place, but broke up in a few hours: the drifting ice, however, commenced lodging a short distance above, and on Tuesday the river was so completely frozen and choked up that several persons crossed over on the ice with utmost safety. Others found good skating on the river, an amusement but little known in this country.

The first important rise in the river next spring came in May. *Gazette*, June 11:

The Arkansas has been higher during the last seven or eight days than for several years past. The large rock at the lower end of this town was about 3 feet under water, a height which the river has not before attained since 1814.

(The height of the top of this rock, "Little Rock," from which the city takes its name, is 24.5 feet on the present gage.)

After this flood the season was average and nothing out of ordinary occurred. In October the river was again high, and heavy rains kept the watercourses full. The 1st of December brought winter and the first snow of the season. The temperature at sunrise of the 6th was 16° F. and rose only 1° during the day; by 10 p. m. it was 5° F. and at sunrise the morning of the 7th the mercury stood at 9° F. below zero and continued below until 10

o'clock in the morning; again the morning of the 18th the temperature was 3° F. below. The weather continued bad with roads near impassible most of the time during December, January, and February. On Monday, the 10th of February, the post rider from Batesville arrived opposite this place, but owing to the floating ice decided crossing too hazardous and returned to Batesville. Ice formed on both sides of the Arkansas, but owing to a high stage the river did not freeze over. The weather continued exceedingly cold throughout February with a minimum 11° F. below. A vast amount of stock died during the cold and at places the river bottoms were reported literally strewn with carcasses of cattle. Mail from Batesville was delayed many times by the cold and snow, and, as spring came on, by the overflowing streams.

A tornado occurred near the village of Little Rock on Wednesday night, May 7, 1823, the storm lasting an hour, during which time rain fell in torrents, accompanied by heavy thunder and strong wind, the largest trees of the forest being uprooted. No serious damage occurred in the village. In June, 1823, the Arkansas again went on a rampage, reaching a stage 13 inches higher than in June, 1822 (about 28.5 on our present gage).

The fall months being dry, conditions were very favorable for harvesting the crop, which, despite the high water in June, was abundant, especially the corn. Frost occurred the 23d of September, the earliest date of which we have a record at Little Rock. In November forest fires deluged the village with smoke, producing continued twilight several days.

Of the next two years, 1824 and 1825, we are able to learn very little, except that there was a flood on the White in 1824, and that during the summer of 1825 little boating was done on the Arkansas because of low water. The spring of 1826 was a late one, and in May the river again flooded, the crest being about 29.2 feet. July was hot and dry.

"If the failure of mail was due to high water, partiality is being shown to southern Missouri and the northern portion of this Territory," says Mr. Woodruff.

In September, the Arkansas reached a stage of 27 feet.

The winter of 1826-27 was very mild, peach trees blooming the last week in December. Excepting a short cold snap in January the temperature scarcely was freezing until in March, when a cold spell did some damage to fruit.

The growing season of 1827 was favorable for crops, except that the weather was rather dry during August. A wet fall was followed by another mild winter, peach trees blooming at Christmas. The only snow of the winter fell in February. A few days were cold during March, but the weather was generally moderate until April, when a severe cold wave, the coldest of the winter, damaged fruit and mast. This severe weather soon moderated and was followed by heavy rains, with high water on the Arkansas in May. In the southwestern counties the rains were much heavier, and Red River reached a stage of 7 or 8 feet above previous high-water marks.

The summer of 1828 was hot and dry. The partial drought which was broken in August damaged crops considerably, especially late corn. Temperatures as high as 90° F. continued until September, and the weather was very fine until the latter part of October, there being little rain until then.

Light frost occurred the 11th of October. November was clear and pleasant—very favorable for cotton picking, the first severe frost coming the 25th. Cold weather

did not set in until January, 1829, gardens being green until about that time. The river was very low during the summer and fall of 1828 and did not reach a moderate stage until March, 1829.

The winter of 1828-29 was severely cold and the spring of 1829 was the most backward during 10 years. A 3-inch snow fell the latter part of March, and frost continued until May.

There were light showers but not enough to keep the river navigable and scarcely any rise occurred until fall. Despite the late spring, crops were unusually good in August, but in the fall heavy rains interfered with the harvest. Winter set in early. By the 20th of November a snowstorm gripped the Territory, and there was ice at Little Rock an inch thick. December was raw and disagreeable; but by January, 1830, spring apparently had come, and the second week found gardens green, the weather delightful, but the Arkansas fast reaching a stage too low for navigation. This was not for long, however, for in April it was again flowing bank full. Crops were planted by the 1st of May, the weather continuing warm and favorable.

Between 8 and 9 p. m., May 30, a tornado struck the village of Little Rock, uprooting trees, unroofing buildings and doing considerable damage. The storm moved from the southwest toward the northeast and was most destructive east of the village.

Crops were slightly damaged this season by dry weather in August. Corn and cotton were good but Irish potatoes, sweet potatoes, and turnips were short. In November the river was so low that it was forded every day at a point about 4 miles below town. No material rise occurred until March, 1831.

Cold weather set in the latter part of December, with rain and snow. Snow fell the first week in January, covering the muddy ground to a depth of 6 inches. Fifteen inches was reported in Washington County. The weather continued cold in March and the Arkansas had in it much floating ice, a condition which seldom occurs so late in the spring. While the spring was cool, crops made good progress. August 10 was so cold fires were necessary for comfort. In September heavy rains injured cotton. The wheat crop was good.

The winter of 1831-32 was colder than the average, with considerable snow and ice. The White at Batesville was frozen over in December and the Arkansas was frozen over 20 miles below Little Rock; at Batesville the river was again frozen over the 29th of February. By the latter part of March the weather had moderated and farming operations were making progress; peach trees were blooming. In May the Arkansas was again high, but did not flood, and by the 1st of July a severe drought was damaging crops considerably. Light frost occurred the 25th of September and some snow fell in November, the river continuing at a good boating stage.

The winter of 1832-33 was decidedly a mild one, outdoor work continuing, and little snow or cold weather was experienced.

June, 1833, brought another flood.

Plantations along the river are all under and scarcely an acre under cultivation has escaped. The damage is inestimable; hundreds of farmers and planters have lost everything. We have ascertained by actual measurement from a mark made by us 8 or 10 years ago that the river attained a greater height during the last rise by about 2 feet 6 inches than it has ever before attained within the recollection of our oldest inhabitants.

(In May, 1826, the crest was about 29.2 on our present gage, making this flood about 31.7 feet.) Crops in the lowlands were destroyed, but in the hills the yield was good.

November 13, 1833:

Last night we observed a great number of falling stars. Frequently a dozen could be seen at one time, many of them bright globes of fire, producing sufficient light to admit of reading the smallest print. They were in every quarter, flying in every direction. It was the most grand spectacle of the kind we ever witnessed. It was first noticed a little before 4 o'clock and continued until daybreak.

The Arkansas was again frozen over in January, 1834. While there was plenty of rain for farming operations throughout the spring, there was not enough to keep the river at a navigable stage. The summer was hot, cotton was never better, the corn crop abundant.

During the eclipse of the sun November 30, 1834, the sky was clear, not a cloud in sight, and one star was visible for an hour.

The winter of 1834-35 was colder than the average, the temperature being below zero in February 1835, and the river full of floating ice. Spring was very backward, the temperature reaching 50° F. only once before the 10th day of March. Crops were late but unusually fine. Considerable rain fell during the summer months and cotton suffered; corn did well enough, but fodder was not saved, owing to wet weather.

The winter 1835-36 was not severe, and in statehood year, 1836, peach trees were blooming in January. The river during the winter continued navigable, and in April, 1836, there was another flood almost as high as 1833. The exact stage is not recorded. In 1836 rainy weather during the summer and fall again damaged crops, the lowlands being flooded in September. By the 29th of November the ground was covered with snow 2 to 3 inches. On May 22, 1837, a severe hailstorm visited this section. The stones were not larger than musket balls, but fell so thick and fast that the ground was entirely covered.

As a crop year 1837 was all that could be desired. The corn yield was the best ever known and the cotton quality and quantity left nothing to be desired. The first frost of the fall occurred on the 24th of October.

The Arkansas was high in May, 1838. The spring was cool up to the middle of May and very unfavorable for farm work. This year crops were severely damaged by a continued drought, corn averaging not over half a crop. Reports from all over the State agree that the drought was the most disastrous ever experienced. In the fall the river was very low, and instead of muddy, as usual, was clear in consequence of no rain. Mr. Woodruff says that during his 20 years on the river he had never before seen the water so clear.

October 24, 1838:

The river continues low, bacon, flour, and provisions high. Unless we have rain and the river rises, Yankees may eat corn bread, as there is no flour or bacon for sale in Little Rock. The legislators will drink their toddy without sweetening.

Low water continued until January, when there was a temporary rise. In December a thin coat of ice covered the river. March brought a boating stage, which continued throughout the summer despite the dry weather of August. The season was average; nothing out of the ordinary was noted until the 27th of November, when a severe sleet and ice storm occurred, which destroyed fruit trees and did other damage, the temperature being 8° F.

The year 1840 was marked by high water in May, 26 feet on the present gage, and a tornado the 10th of June, during which torrential rain fell and considerable damage was done. The winter 1840-41 was mild and pleasant, the roads in February being reported in better condition than ever before at that season of the year.

The weather continued mild, and cherries were ripe the 26th of May. Summer 1841 found the river very low and it continued so until October.

The winter 1841-42 was the mildest experienced in several years. Gardens were green and peach trees in bloom the 1st of February, the spring being about 20 days earlier than the preceding one. The 1st of April crops were well advanced and winter wheat was especially fine. April was cold and rainy, rather unfavorable for farming operations but frequent rains during the growing season and fine weather throughout the summer made crops prosper, and the 17th of October crops of every description were better than they were in 1837, the good crop year.

The winter 1842-43 was not unusually cold, but more snow fell than ever before noted. There were five snowstorms, the one of greatest depth occurring March 20, 1843, when the ground was covered 8 inches on a level. The dates were December 14, January 11, February 13, March 4, and March 20. An earthquake shock was noted in February and a bright mass of vapor rising to an angle of 40° was mentioned as observed between 7 and 8 o'clock on the evening of the 14th of March. From the description it must have been either the zodiacal light or the aurora. A comet is mentioned during March and April.

Nothing out of the ordinary was again recorded until the spring of 1844, when in May the river reached a stage of 32.6 feet, the highest on record. All crops in the lowlands were destroyed. This flood had no more than abated until heavy rains again put the water out in July. The exact stages are not given but the lowlands were all flooded along the Arkansas, and in Jackson County only the crops grown on the highlands matured.

The winter was mild. In February the weather was very pleasant, peach trees being in full bloom, willows green, forest buds bursting.

High water came again on the Arkansas in July, 1845, but there was no general destruction of crops as in 1844. Conway reported more cotton than could be gathered and enough corn to feed all the emigrants to Texas. The fall was very dry and favorable for harvesting, the river too low for navigation.

Gazette, December 3, 1845:

Winter is upon us. Last Friday the temperature fell to 15°, and snow began early Saturday night, continuing until Sunday night, when at least 8 inches had fallen. It now stands, Tuesday morning, after two days of bright sunshine, about 6 inches deep and the cold is intense. Our city is merry with the bells of gliding sleighs, and hot whisky punch is at a premium. Snow fell again Tuesday night but this, Wednesday morning, is clear and bright but very cold.

No material rise in the river occurred until the following spring, and then the boating period was short, the stage being low again in August and continuing so until the latter part of November.

In June, 1846, crops throughout the country were looking fine and promising showers fell about as needed, but they were held back somewhat by cold weather and a damaging wind storm the 3d of July destroyed some. Taking the year as a whole, the corn crop was considerably above an average, but cotton was not quite so good, having made too luxuriant a growth, and rain in the fall interfered with picking. September was very warm but in October the weather was more pleasant and favorable for harvesting. The first frost occurred the 23d of October.

The winter 1846-47 was mild. Mention of freezing temperature was found only four times. Rains kept the river at a moderate stage and farming operations went merrily on. By the 2d of July many were laying by

their corn. Randolph County reported crops better than ever before, and an excellent oat crop was harvested in Hempstead County. Worms did some damage to cotton in 1846 and were reported again in the Red River section in 1847, but little damage was done.

The year 1848 was unmarked except that there was no material rise in the Arkansas.

Gazette, November 24, 1848:

On Friday evening last the aurora borealis was observed. The whole northern horizon seemed brilliantly illuminated with a pale pink flame, extending at times to the zenith, presenting a grand display of this wonderful phenomenon.

December 8, 1848:

The weather is as wet as water can make it, walking as juicy as julep in June, but not so agreeable. During Tuesday night it rained incessantly, causing such a rise in that beautiful and neglected stream, the Town Branch, as to create considerable excitement among the residents and planks along its course.

The river remained navigable, the season average, with nothing out of the ordinary to report until the 18th of May, 1849, when heavy frost destroyed the greater portion of the cotton that was up. This frost was followed in a few days by a heavy rain and wind storm, doing considerable damage not only to crops but uprooting trees as well. In July almost incessant rains damaged crops still more; oats, which were just ready to cut the 6th, were injured considerably. Reports from all over the State indicate damage in all lowlands. The Arkansas was near flood stage; the Little Red at Searcy was almost as high as previous high-water mark, and from Red River there was a report of \$1,000,000 damage. By September conditions were near normal, and the fall months were pleasant.

The winter 1849-50 was not recorded as severely cold at Little Rock, but at Mount Ida, Montgomery County, zero temperatures occurred in January. A 6-inch snow fell at Little Rock about the middle of February. Spring was late and very unfavorable for planting, and while crops were late in most sections of the State they were promising until dry weather in August did some damage. In the fall the turnout was better than expected. September was hot and dry. During the week ending September 27, 1850, the temperature reached 90° F. every day; and no rain having fallen for a month the river was very low, and remained so until January, 1851.

In the southern part of the State dry weather damaged crops considerably during the growing season of 1851, but in the White River bottoms more rain fell and the late crops were benefited. The Arkansas was low during the summer months, and while there were fluctuations, it being navigable at times, there was no material rise until the spring of 1852. In January, 1852, it was frozen over at Little Rock for a short time. Frost the latter days of March destroyed fruit. An aurora was observed Tuesday night, April 20, 1852. The Arkansas was full in May, but the damage was trifling, and the season as a whole was very favorable, more corn being made than during the two previous years. Cotton was damaged somewhat by wet weather in August. Potatoes were abundant.

The Arkansas was navigable during the winter 1852-53 and continued so until August, 1853. The winter was average, snow falling in February and March, but no severely cold weather was noted. The crop in 1853 was unusually fine, the fall being dry and favorable for harvesting. In October the river was "in fine boating order for birch canoes," nothing more, about this stage continuing until May, 1854.

Considerable rain fell in June, 1854, and crops were damaged, but by August the weather was too dry for corn. Late showers improved conditions somewhat, but only a fair crop was made.

Through another winter, 1854-55, the river was too low for navigation except by the lightest vessels. No severe weather occurred and the season went from winter to summer without much spring. There was no rise in the river during the spring months, and planters made flatboats to carry their cotton to New Orleans. Showers fell about as needed but there was no rise in the river. Late rain damaged cotton considerably, some sections reporting the yield cut in half, but corn was good. Killing frost occurred the 26th of October, and as the river was low it froze over in January, 1856. In February there was a rise, and in March boating was flourishing.

The summer of 1856 was dry and crops were damaged; insects were more active than ever before. In the fall heavy rains did further damage. There were many good crops made, but more poor ones, so the year as a whole was not favorable. The river was low during the summer months, but became navigable for the larger class of boats late in the fall.

There was heavy snow in January, 1857, and the river was closed for over a week. In February, with a thaw came high water. In April snow and cold weather damaged fruit and vegetables. Corn had to be replanted this spring, and, while late, made a good yield. Owing to heavy rain in the fall, cotton was short.

The winter 1857-58 brought no unusual weather and the river remained navigable. In March, 1858, owing to heavy rains, all the rivers of the State were high. The Little Red at Searcy was very high, Jacksonport was entirely submerged by high water on the White and Black, and the Mississippi was high. The fall was wet, the cotton crop short, but corn production was above an average and fruit was very plentiful.

The winter 1858-59 was average, the river low most of the season and the spring of 1859 late. Cold weather in June damaged wheat in the northern part of the State, but despite a late spring an abundant crop was made and with a dry fall was harvested.

The river was low in December, but with January, 1860, came considerable rain and snow and higher water. The roads were impassable most of the time, the full streams making traveling almost impossible. Spring was again late and some damage occurred to crops in May, but as a whole the year was average and a fair crop was made.

For the next few years the papers were too full of secession and the war to make much mention of the weather or crops. From what is available we learn that as a crop year 1861 was a record breaker. The river was too low during the early summer for navigation, and except for a rise in August was low until February, 1862.

In 1862 there was a strong sentiment against raising cotton because the South could not dispose of it to any advantage, so principally food crops were grown.

Cold weather in the spring of 1862 damaged fruit, and a drought in July and August cut the corn and wheat crops short; but as an increased acreage had been devoted to grain, the supply was abundant for home consumption. In 1863 another large corn and wheat crop was made, and, while rust did some damage, the crop was larger than the previous year; fruit too was abundant. The *Washington Telegraph* says:

The starvation policy of the Federals will be defeated this year by the Almighty.

The winter of 1863-64 was severely cold. An Army train crossed White River on the ice at Jacksonport, and even in the southern part of the State, Washington, Hempstead County, the temperature was as low as 6° F. The early spring of 1864 was favorable, but cold weather about the middle of March damaged fruit. A fair corn and wheat crop was made.

In 1866 the spring was promising except too wet for cotton. Corn and vegetables were fine to begin with, but the wet weather continued so late into the summer that the crops in the bottoms were drowned out and in the hills were washed away. In the late summer and fall dry weather did further damage. The rivers were high most of the spring and early summer, but there was no general overflow.

The spring of 1867 was cold and wet, snow, sleet, and hail falling at Little Rock as late as the 5th of March. Owing to the wet weather crops were late and very grassy; but dry weather came in time to clean them, and an excellent corn and cotton crop was made. The fall was dry. The first bale of cotton was marketed the 24th of September, about a month later than the average date. The weather continued warm, with occasional temperatures as high as 80° F. until the middle of December, but the last week of the year it was severely cold, with plenty of sleet and snow on the ground.

The year 1868 was favorable and an excellent crop was made in most sections of the State. A wet fall was unfavorable for cotton picking. Winter did not set in until after Christmas.

The spring and summer of 1869 were average, but the fall was very dry and the Arkansas too low for navigation.

January, 1870, was a very pleasant month, more like autumn than winter, but the latter part of February was cold, the temperature at one time being 10° F., and the first 20 days of March were very cold. Spring was late, with snow on the ground Easter, April 16, 1870. After the spring rains the weather was dry and favorable for farm operations, and the best crop made since the war was harvested in the fall.

The winter of 1870-71 was not severely cold, but cool weather continued until in May; so the season was backward and some damage was done to wheat; but the year 1871 as a whole was favorable and a good crop was made.

The spring of 1872 was again backward. Cotton was not all planted until June, the result being that an increased acreage was given to corn. High water also delayed planting in the low lands. In May a terrific hailstorm was reported in Jefferson County, but other unfavorable conditions had prevented much headway being made with crops, so the damage was lighter than it would have been under normal conditions. As the season advanced conditions became more favorable and a fair crop was made, corn being good, and cotton being estimated at three-fourths a normal crop.

Of the winter 1872-73 little information was obtained, but the spring of 1873 was wet, and farmers were considerably behind with their work the middle of June. Wet weather continued and some cotton was never cleaned. Oats and pastures were good. Cotton was short, but the grain crops were sufficient for home consumption.

The year 1874 was unmarked, conditions being about average and a fair crop was harvested.

From 1875 to July, 1879, little definite information was obtained. There seemed to be nothing of marked importance, the weather being about normal and crops average, with no disastrous floods.

The Weather Bureau records starts the 1st of July, 1879, and thereafter the record is complete.

CONCLUSION.

It must not be inferred from this paper that Arkansas's climatic history is a record of floods, freezes, and droughts for those were events out of the ordinary and as such attracted attention and were mentioned in the newspapers, while of the average year little was said for abundant harvests and delightful seasons were not out of the ordinary.

Arkansas has an annual rainfall of 48 inches properly distributed for agricultural purposes, a growing season ranging from 169 days in the extreme northwest to 241 in the southern counties, permitting of the growing of two or more crops each year, heavy spring rains, warm summers, and long dry autumns. Situated as we are, far enough south to escape the prolonged and bitter cold of the northern winter, far enough north to avoid the scorching sun of a tropical summer, Arkansas's climate is admirable for a diversified agricultural State.

HAILSTORM AT LEHI, UTAH.

A hailstorm of unusual severity occurred at Lehi, northern Utah County, Utah, on August 9, 1920, from about 4:30 p. m. to 4:50 p. m., which, owing to the density of the population affected, was undoubtedly the most destructive hailstorm of record in the State. Other storms have deposited as much hail, and as large hailstones, within the State, but none has been so destructive of property.

The hailfall accompanied a moderate rain and thunder storm which passed over the city from Cedar Valley to the Wasatch Mountains, from which rain fell a few miles in all directions around Lehi, and a considerable amount of hail fell on the higher portion of the adjacent mountains. The path marked by the most destructive hail was about 1 mile wide and 2 miles long, extending in a northwest-southeast direction across the northern portion of Lehi city. An area about $\frac{3}{4}$ by $1\frac{1}{4}$ miles was well covered by intense hailfall, some local accumulations being a few inches deep.

The stones were unusually large, ranging from the size of large marbles to hens' eggs, the average size in a miscellaneous collection taken from the top of a drift after the storm being about 4 inches in circumference, though many were found to be from 5 to $6\frac{1}{2}$ inches in circumference. They were mostly of a roughly spherical form, though many were flattened, elongated, or otherwise distorted. (Figs. 2 and 3.) Large numbers of the hailstones were broken by the impact of falling, and were found to have from 6 to 10 concentric layers of opaque and transparent snow and ice, covering a pellet of ice from a quarter to a half inch in diameter. At the Cooperative Weather Station (at the postoffice) 0.60 inch of precipitation was measured, about one-half of which was from melted hail. One stone picked up near the rain-gage after the storm was $6\frac{1}{2}$ inches in circumference, though the station is slightly to one side of the path of greatest destruction.